

## **ABSTRACT**

The detection method includes generating a plurality of neural network models. Each model has as a training set a data set from a plurality of samples of a commodity of known origins. Each sample has been analyzed for a plurality of elemental concentrations. Each neural network model is presented for classification a test data set from a plurality of samples of a commodity of unknown origins. As with the training set, the samples have been analyzed for the same plurality of elemental concentrations. Next a bootstrap aggregating strategy is employed to combine the results of the classifications for each sample in the test data set made by each neural network model. Finally, a determination is made from the bootstrap aggregating strategy as to a final classification of each sample in the test data set. This final classification is indicative of the geographical origin of the commodity. The system includes software for generating the neural network models and a software routine for performing the bootstrap aggregating strategy.